The performance of mediation analysis based on robust estimator

ABSTRACT

Mediation is said to occur when the relationship between the dependent variable Y and the independent variables X can be accounted for by an intermediate variable M. Simple mediation model involves a series of regression equations. The Ordinary Least Squares (OLS) method is often used to estimate the parameters of the mediation model. However, many researchers are not aware of the fact that the OLS estimators suffer a huge set back in the presence of outliers. In order to rectify this problem, robust methods which are not easily affected by outliers, have been introduced. In this paper, we have proposed a robust M and MM procedure for the estimation of mediation parameters in the presence of single outlier. The performance of the MM, M and OLS estimates are compared by numerical example. The empirical evidence shows that the MM, M and OLS estimators are equally good when there is no outlier in the data. Nevertheless, when contamination occurs in the data, the performance of the MM is the best followed by the M and the OLS estimators.

Keyword: Mediation analysis; Outliers; M-estimator; MM-estimator